

103 as being unpatentable over Foran et al. The Examiner's position is that in Table 1, component A teaches an adhesive comprising 70% water (30% solids), 6.5% gelatinized (modified) starch, and 23% ungelatinized native corn starch. Applicants respectfully traverse this rejection.

The Examiner has not fully appreciated the claimed invention and its distinguishing features over Foran et al. The Applicants have discovered that for a starch-based adhesive composition for use in cigarette manufacturing to perform at the equipment speed of a typical cigarette making machine, (i.e., speeds greater than 5000 cigarettes per minute), it must include a dispersible, unmodified starch that thickens or gels on heating to a temperature greater than about 50°C. There is no recognition of this necessity in Foran et al. or any other reference of record.

Foran et al., which is primarily directed an adhesive for corrugated paperboard, actually teaches away from the present invention. Foran et al. requires that an alkali base as one of the "four essential ingredients" of the adhesive. In Table 1 of Foran et al., component A, lists "caustic" as the third ingredient in all of the adhesives used as examples. Foran et al. gives as examples of suitable alkali curing agents sodium hydroxide, potassium hydroxide, calcium hydroxide, barium oxide, sodium carbonate, and sodium silicate.

The starch-based adhesive composition for use in cigarette manufacturing of the present invention does not include any alkali. In fact, the use of alkali as described in Foran et al. would be detrimental and undesired to performance particularly at the equipment speed of a typical cigarette making machine.

To demonstrate this point, a comparative testing by following the basis and teachings of the Foran et al. reference was conducted. An adhesive sample was prepared by following the procedure of Example 1 of the present

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application, however, also incorporating alkali. Thus, an adhesive composition comprising 20% ethylated starch, 15% unmodified corn starch, 10% urea, 49.65% water, 0.1% defoamer, 0.15% proxel GXL preservative was formed and mixed with 5% of 15% sodium hydroxide solution. The resultant product had an initial viscosity of 23 poise.

This adhesive and the adhesive of the claimed invention disclosed via Example 1 were compared in terms of shelf stability, an essential item for the product and application. Five hundred gram samples of both systems were placed in an oven at 40°C for 24 hours and the viscosities of each were measured at room temperature. A dramatic change in the viscosity was noticed in the comparative example. The system viscosity remained constant whereas the comparative example viscosity drifted from initial 23 poise to 36 poise, a change of 56%. Such a viscosity drift is not acceptable in an adhesive for use in cigarette manufacturing. Thus, Applicants believe that the claimed starch-based adhesive composition is distinguishable over Foran et al. Applicants accordingly respectfully request that the Section 103 rejection based on Foran et al. be withdrawn.

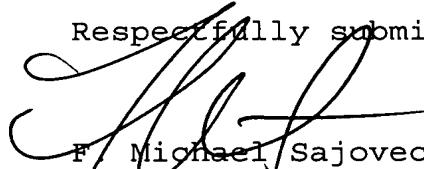
As discussed during the interview conducted September 13, 1995, independent Claim 16 has been amended to clarify that the adhesive composition is devoid of alkali. In addition, as agreed during the interview, a copy of the Declaration presented in the parent application Serial No. 08/154,617 by Anil B. Goel, is also attached.

The concerns raised by the Examiner in the Office Action having been addressed in full, it is submitted that this

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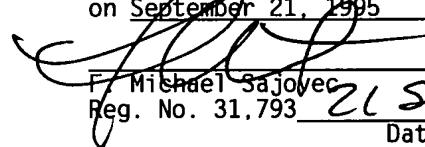
application is in condition for allowance, which action is respectfully requested.

Respectfully submitted,

  
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21 Sept 1995  
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